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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

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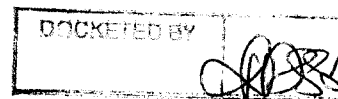
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AZ CORP COMMISSION
DOCKET CONTROL

Arizona Corporation Commission

DOCKETED

JUL 27 2011



IN THE MATTER OF THE APPLICATION
OF TUSAYAN WATER DEVELOPMENT
ASSOCIATION, INC. FOR
ESTABLISHMENT OF RATES FOR
WATER SERVICE

DOCKET NO. W-02350A-10-0163

DOCKET NO. W-20765A-10-0432

DOCKET NO. W-20770A-10-0473

IN THE MATTER OF THE APPLICATION
OF ANASAZI WATER CO., LLC FOR
ADJUDICATION “NOT A PUBLIC
SERVICE CORPORATION”

**DIRECT TESTIMONY OF
RAY L. JONES**

IN THE MATTER OF THE APPLICATION
OF HYDRO-RESOURCES, INC. FOR
ADJUDICATION “NOT A PUBLIC
SERVICE CORPORATION”

(Administrative Law Judge Sarah H.
Harpring)

Intervenor Town of Tusayan (“Town”), through its counsel, pursuant to the
Procedural Order dated April 20, 2011, hereby submits the direct testimony of Ray L.
Jones.

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND ADDRESS?

A. My name is Ray L. Jones. My business address is 25213 N. 49th Drive, Phoenix, Arizona
85083.

Q. WHAT IS YOUR PROFESSIONAL EXPERIENCE?

A. I have an extensive background in the Arizona water and wastewater utility businesses. I
began my career as a Staff Engineer with Citizens Utilities Company (“Citizens”) at its
Sun City office in 1985. I held progressively more responsible positions and ultimately

1 became the Vice President and General Manager for Citizens' Arizona Water and
2 Wastewater Operations in 1998. When Arizona-American Water Company ("Arizona-
3 American") purchased Citizens' water and wastewater operations in 2002, I became
4 Arizona-American's President. In 2004, I left Arizona-American and formed my own
5 consulting firm, ARICOR Water Solutions, LC ("ARICOR"). ARICOR provides a wide
6 range of engineering and regulatory support services to the private utility, municipal
7 utility, and development sectors.

8
9 **Q. WHAT IS YOUR EDUCATIONAL EXPERIENCE?**

10 A. I have a B.S. in Civil Engineering from Kansas University (1985) and an M.B.A. from
11 Arizona State University (1991).

12 **Q. DO YOU HOLD ANY PROFESSIONAL LICENSES?**

13 A. I am a licensed Professional Engineer in Arizona and California and I am a Grade 3
14 Certified Operator for all four Arizona classifications.

15
16 **Q. WHAT IS YOUR EXPERIENCE BEFORE THE COMMISSION?**

17 A. In my time with Citizens and Arizona-American, I prepared or assisted in the preparation
18 of multiple filings before the Arizona Corporation Commission ("Commission"),
19 including rate applications and CC&N filings. Since starting ARICOR, I have prepared
20 several filings and assisted in the preparation of several more filings before the
21 Commission, including rate applications and CC&N filings. I have also provided
22 testimony in all of these cases before the Commission. A summary of my regulatory
23 work experience is attached as Exhibit A.

24 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

25 A. I am testifying on behalf of the Town of Tusayan.

26
27 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

1 A. I will discuss the report titled Tusayan Municipal Water Study ("Water Study") attached
2 as Exhibit B.

3
4 **II. TUSAYAN MUNICIPAL WATER STUDY**

5 **Q. WHO PREPARED THE WATER STUDY?**

6 A. The Water Study was prepared by ARICOR Water Solutions, LC ("ARICOR") under the
7 supervision of Interim Public Management Services and Willdan Engineering. I was the
8 principal author of the report with input and review being provided by Mr. Grant
9 Anderson of Willdan Engineering and Mr. George Pettit of Interim Public Management.

10 **Q. WHY WAS THE WATER STUDY PREPARED?**

11 A. The Water Study was prepared to serve as the research and basis for the Town Council for
12 the Town of Tusayan ("Town") making an informed decision whether or not to enter into
13 the municipal water service and refer the question to the voters.

14 **Q. PLEASE SUMMARIZE THE SCOPE OF THE WATER STUDY?**

15 A. ARICOR's scope of work consisted of the following tasks.

16
17 Task 1 consisted of collecting, reviewing, organizing and evaluating pertinent information
18 pertaining to the water facilities and operations of Tusayan Water Development
19 Association, Inc. ("TWDA"), Hydro-Resources, Inc. ("Hydro") and Anasazi Water Co.,
20 LLC ("Anasazi").

21
22 Task 2 consisted of developing an inventory of the facilities used to provide water service
23 to the Town. The inventory was assembled from data collected in Task 1 and through a
24 site visit conducted on March 31, 2011 and April 1, 2011.

25 Task 3 consists of establishing a valuation for the inventoried water utility assets owned
26 by Hydro and Anasazi using the Reproduction Cost New Less Depreciation method
27 ("RCNLD").
28

1 Task 4 consisted of an operational evaluation of the water systems and facilities used to
2 provide service to the Town.

3 **Q. WHAT RECOMMENDATION DID THE WATER STUDY MAKE TO THE**
4 **TOWN?**

5 A. The Water Study recommended the Mayor and Council establish a single municipal water
6 system for the community.

7 **Q. WHAT DID THE RECOMMENDATION SAY ABOUT RISK TO THE TOWN?**

8 A. The recommendation pointed out that there was significant risk to the Town since the
9 assets of Hydro and Anasazi alone are not sufficient to operate the existing water system
10 serving the Town. The Water Study pointed out that assets owned by entities other than
11 Hydro and Anasazi are essential to the operation of the water system and that the issues
12 related to the fractured ownership will need to be addressed and resolved.

13 **Q. WHAT ARE THE KEY CONCLUSIONS OF THE WATER STUDY RELIED**
14 **UPON IN MAKING THE RECOMMENDATION TO THE TOWN?**

15 A. The key conclusions are presented below:

- 16 • TWDA holds the CC&N to provide water service to Tusayan, but TWDA has no
17 physical assets.
- 18 • Hydro owns one well, one 525,000 gallon reservoir and a water distribution system.
19 Hydro relies upon water lines owned by Squire Motor Inns, Incorporated ("Squire")
20 and others to supply and move water through the system. Hydro relies on a tank
21 owned by Squire to provide water service.
- 22 • A Reconstruction Cost New Less Depreciation value of \$926,764 is established for the
23 Hydro assets.
- 24 • Anasazi has nine customers, with three of the customers connected to an isolated
25 portion of its distribution system receiving water from an interconnection with
26 Hydro's distribution system. Anasazi owns one well and a 400,000 gallon storage
27
28

1 tank. The system is supplied by hauled water from Valle Canyon Water and purchases
2 from Hydro. The well pump and motor are not in service and have been removed
3 from underground, and are lying on the ground at the well site.

- 4 • The Reconstruction Cost New Less Depreciation ("RCNLD") value of the Anasazi
5 assets is \$600,409.
- 6 • The RCNLD valuation provides an indicator of the value of the Hydro and Anasazi
7 water system assets. However, when establishing value of a water system, RCNLD is
8 not the only consideration. Consideration should be given to the key operational
9 analysis findings, which would tend to lower system valuation absent corrective
10 actions.
- 11 • The physical age, condition and location of several of the major assets, including the
12 Hydro Storage Tank, the Anasazi Storage Tank, the Anasazi Well and the Hydro Fire
13 Pump, make it likely that they will require extensive reconstruction in the near future.
- 14 • The Hydro distribution system cannot be operated in its present configuration without
15 use of the Squire distribution system and other privately owned water lines.
- 16 • Common ownership of distribution system facilities is desirable and would allow for
17 improved planning, maintenance and operation of the system without danger of
18 conflict or misunderstandings between the various system owners.
- 19 • The Town should consider acquiring the Anasazi and Hydro distribution systems as
20 part of a purchase of all distribution facilities used to provide water service to
21 Tusayan.
- 22 • If the Town of Tusayan does not purchase the distribution facilities used, but not
23 owned by Hydro, the Town of Tusayan will need to obtain operating agreements with
24
25
26
27
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Squire and other private entities to use the well capacity, reservoir storage and water mains in order to be able to operate the system in its present configuration.

Q. WHAT ARE THE KEY OPERATIONAL ANALYSIS FINDING THAT WOULD TEND TO MAKE THE VALUE OF HYDRO'S ASSETS LESS THAN THE RCNLD VALUATION?

A. The key operational findings affecting value are presented below:

- The Hydro distribution system cannot function without interconnection with the Squire and private distribution facilities.
- The fire pump appears to somewhat oversized and not optimally located to work well with the distribution system.
- Hydro's well, Tusayan #2, is not adequate to provide service to the combined system without being supplemented by Squire #1 owned by Squire.
- Hydro uses 2.0 million gallons of storage in Squire's 3.0 million gallon water storage tank.
- The specific terms of Hydro's use of Squire's well, storage tank and distribution facilities are not clearly documented.
- There is a lack of formal easements for the water lines.
- There is a lack of documentation regarding the ownership and maintenance responsibilities for the privately owned distribution facilities.
- Due to the age and condition of the storage tank, fire pump and piping significant reconstruction is likely to be required in the near future.

Q. WHAT ARE THE KEY OPERATIONAL ANALYSIS FINDING THAT WOULD TEND TO MAKE THE VALUE OF ANASAZI'S ASSETS LESS THAN THE RCNLD VALUATION?

A. The key operational findings affecting value are presented below:

- Three Anasazi customers are served by an isolated portion of distribution system that is interconnected with and receives water from the Hydro distribution system.
- The Anasazi well is not currently operational and has a reported history of low production, causing reliance on hauled water to meet demands. The current condition of the well is unknown.
- The Anasazi system is currently reliant upon hauled water for all customer demands, except for the three customers that receive water from the Hydro distribution system.
- Anasazi's storage tank is 8' shorter than Hydro's storage tanks and installed at an elevation approximately 15 feet lower than Hydro's tanks, causing the Anasazi and Hydro distribution systems operate at different hydraulic grade lines. The hydraulic grade line difference will make interconnecting the systems and fully utilizing the Anasazi storage capacity difficult or impossible.
- Due to the unknown condition of the well and the age of the storage tank significant reconstruction is likely to be required in the near future.

Q. HAVE YOU BRIEFED THE TOWN COUNCIL ON YOUR REPORT?

A. No. I will brief the Town Council on August 3, 2011.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Original and 13 copies of foregoing filed
this 27th day of July, 2011, with:

Docket Control Division
ARIZONA CORPORATION COMMISSION
1200 West Washington
Phoenix, Arizona 85007

1 Copies of the foregoing mailed this
2 27th day of July, 2011, to:

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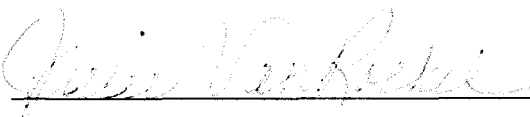


EXHIBIT A

Ray L. Jones P.E.
Principal
ARICOR Water Solutions, LC
25213 N. 49th Drive
Phoenix, Arizona 85083

EMPLOYMENT HISTORY

2004 – Present

ARICOR Water Solutions

Principal

ARICOR Water Solutions offers a wide range of services to the private and public sectors. Projects include water resources strategy development, water rights evaluation and development of regulatory strategies. Services also include consultation on water and wastewater utility formation, management and operations, and valuation, including due diligence analysis and preparation of financial schedules and testimony in support of CC&N, Rate Case and other filings before the Arizona Corporation Commission. ARICOR Water Solutions provides water, wastewater and water resource master planning, water and wastewater facilities design, and owner representation; including value engineering, program management and construction oversight. Lastly, ARICOR Water Solutions supports water solutions with contract operations and expert witness testimony and litigation support.

2002 to 2004

Arizona-American Water Company

President

Responsible for leadership of the Arizona business activities of Arizona-American Water Company. Key responsibilities include developing and evaluation new business opportunities, developing strategic plans, establishing effective government and community relations, insuring compliance with all regulatory requirements, and providing management and guidance to key operations and support personnel.

1998 to 2002

Citizens Water Resources, Arizona Operations

Vice President and General Manager

Responsible for leadership of the Arizona regulated and unregulated business activities of Citizens Water Resources. Key responsibilities included developing and evaluation new business opportunities, developing strategic plans, establishing effective government and community relations, insuring compliance with all regulatory requirements, and providing management and guidance to key operations and support personnel.

1990 to 1998

Citizens Water Resources, Arizona Operations

Engineering and Development Services Manager

Responsible for management of a diverse group of business growth related activities. Responsibilities include: marketing of operation and maintenance services (unregulated business growth), management of new development activity (regulated business growth), management of engineering functions (infrastructure planning and construction), management of water resources planning and compliance, management of growth-related regulatory functions (CC&N's and Franchises), and management of capital budgeting functions and capital accounting functions.

1985 to 1990

Citizens Water Resources, Arizona Operations

Civil Engineer

Responsible for the planning, coordination and supervision of capital expansion and major maintenance and rehabilitation projects as assigned. Responsible for development of capital program for Maricopa County Operations.

EDUCATION

Arizona State University – Master of Business Administration (1991)

University of Kansas – Bachelor of Science in Civil Engineering (1985)

PROFESSIONAL CERTIFICATION

Registered Professional Engineer – Civil Engineering – Arizona

Professional Engineer – Civil Engineering – California

Certified Operator – Wastewater Treatment, Wastewater Collection, Water Treatment, Water Distribution – Arizona

PROFESSIONAL AFFILIATIONS

- Director - Water Utilities Association of Arizona (1998 – 2004)
- Member - American Society of Professional Engineers
- Member - American Water Works Association
- Member - Arizona Water Pollution Control Association
- Member - Water Environment Federation

CIVIC AND COMMUNITY INVOLVEMENT

- Advisory Member - Water Resources Development Commission (2010 – Present)
- Board of Directors – Greater Maricopa FTZ, Inc. (2009 – Present)
- Chairman WESTMARC (2008)
- Director and Member of the Executive Committee- WESTMARC (1998 – Present)
- Co-Chairman, WESTMARC Water Committee (2006 – 2007)
- Chairman-Elect WESTMARC (2007)
- Member – Corporate Contributions Committee, West Valley Fine Arts Council Diamond Ball (Chairman 2005)
- Member – Technical Advisory Committee – Governor's Water Management Commission (2001)
- Board Member, Manager & Past Chairman – North Valley Little League Softball

REGULATORY EXPERIENCE

Testimony has been provided before the Arizona Corporation Commission in the dockets listed below. Unless otherwise indicated testimony was provided on behalf of the utility.

Filing Year	Utility(ies)	Filing Type(s)	Docket(s)
1992	Sun City West Utilities Company	CC&N Extension (Expansion of Sun City West)	U-2334-92-244
1993	Sun City Water Company Sun City Sewer Company	CC&N Extension (Addition of Coyote Lakes)	U-1656-93-060 U-2276-93-060
1993	Tubac Valley Water Co., Inc.	CC&N Extension (Various Subdivisions on western border)	U-1595-93-241
1993	Sun City West Utilities Company	CC&N Extension (Expansion of Sun City West)	U-2334-93-293
1995	Citizens Utilities Company Sun City Water Company Sun City Sewer Company Sun City West Utilities Company Tubac Valley Water Company	Ratemaking	E-1032-95-417 U-1656-95-417 U-2276-95-417 U-2334-95-417 U-1595-95-417
1996	City Water Company Sun City Sewer Company	CC&N Extension (Acquisition of Youngtown)	U-1656-96-282 U-2276-96-282
1996	Citizens Utilities Company	CC&N Extension and Deletion (Realignment of Surprise Bdry.)	E-1032-96-518
1998	Sun City Water Company Sun City West Utilities Company	CAP Water Plan and Accounting Order (Sun Cities CAP plan)	W-01656A-98-0577 SW-02334A-98-0577

Filing Year	Utility(ies)	Filing Type(s)	Docket(s)
2000	Citizens Water Resources Company of Arizona Citizens Water Services Company of Arizona	CC&N Extension and Accounting Order (Anthen Jacka Property and Phoenix Treatment Agreement)	SW-3455-00-1022 SW-3454-00-1022
2000	Citizens Communications Company Citizens Water Services Company of Arizona	CC&N Extension and Approval of Hook-Up Fee (Verrado)	W-0132B-00-1043 SW-0354A-00-1043
2002	Arizona-American Water Company	Ratemaking	WS-01303A-02-0867 WS-01303A-02-0868 WS-01303A-02-0869 WS-01303A-02-0870 WS-01303A-02-0908
2004	Arizona-American Water Company Rancho Cabrillo Water Company Rancho Cabrillo Sewer Company	CC&N Transfer	WS-01303A-04-0089 W-01303A-04-0089 SW-03898A-04-0089
2004	Johnson Utilities Company, LLC (Representing Pulte Home Corporation)	CC&N Extension	WS-02987A-04-0288
2005	Perkins Mountain Utility Company Perkins Mountain Water Company	New CC&N & Initial Rates	WS-20379A-05-0489 W-20380A-05-0490
2005	West End Water Company	CC&N Extension	W-01157A-05-706
2005	Arizona-American Water Company	Approvals Associated with Construction of Surface Water Treatment Facility	W-01303A-05-0718
2006	Arizona-American Water Company	Ratemaking	WS-01303A-06-0403
2008	Sunrise Water Company	Ratemaking	W-02069A-08-0406
2009	Baca Float Water Company	Ratemaking	WS-01678A-09-0376
2009	Aubrey Water Company	Lost Water Evaluation (Rate Case Compliance)	W-03476A-06-0425
2009	White Horse Ranch Owner's Assn.	Ratemaking	W-04161A-09-0471
2010	Litchfield Park Service Company	Ratemaking	W-01427A-09-0104

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EXHIBIT B

Tusayan Municipal Water Study

July 26, 2011

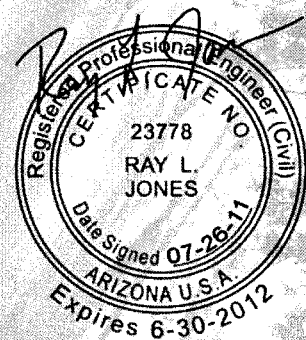
Prepared for:
Town of Tusayan
PO Box 709
Grand Canyon, AZ 86023

Prepared By:

Willdan Engineering
7500 N. Dreamy Draw Dr.
Suite 130
Phoenix, AZ 85020
(602) 870-7600

**Interim Public
Management, LLC**
16868 N Stoneridge Court
Fountain Hills, AZ 85268
(480) 577-0949

www.interimpubliсmanagement.com



ARICOR Water Solutions LC
25213 N. 49th Drive
Phoenix, AZ 85083
(623) 341-4771
FAX (623) 582-5160



ARICOR
Water Solutions

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APPENDICES

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Appendix 3 – Facility Information for Anasazi Water Co., LLC

Appendix 4 – Well Data obtained from ADWR

Appendix 5 – Water Sales Data

Appendix 6 – Facility Observation Reports

Appendix 7 – Site Photographs April 1, 2011 Site Visit

Appendix 8 – Facilities Cost Data

1. Executive Summary

1.1 Scope

This report was prepared under supervision of Interim Public Management Services (IPM) and Willdan Engineering (Willdan) as Town Engineer. Willdan secured the services of ARICOR Water Solutions LC to assist in establishing the value of the water systems owned by Hydro-Resources, Inc. ("Hydro") and Anasazi Water Co., LLC ("Anasazi")¹ and prepare the report.

IPM contacted legal representatives of Hydro and Anasazi in developing the scope of work and valuation methodology. Their consent to the methodology and scope of services was considered essential to ensure that future objections to this report, its content, and findings were minimized given the willingness to consider sale of assets by Hydro and Anasazi to the Town of Tusayan to form a municipal water system.

This Report is prepared to serve as the research and basis for Tusayan Town Council making an informed decision to enter into the municipal water service and referring the question to the voters.

1.2 Background

The Tusayan Town Council received an unsolicited letter from Hydro dated December 12, 2010 indicating a willingness to consider selling its water system to the Town of Tusayan so that it could develop a municipal water system. The letter also referred to pending Arizona Corporation Commission ("Commission") actions against Tusayan Water Development Association, Inc. ("TWDA"), Hydro and Anasazi.

TWDA is a private non-profit corporation who holds a Certificate of Convenience and Necessity ("CC&N") issued by the Commission allowing it to provide water service to Tusayan. Hydro and Anasazi own and operate water distribution systems used to provide water service in Tusayan. TWDA does not own any water facilities. TWDA buys water from Hydro and Anasazi and bills customers for their water consumption.

The Tusayan Town Council, at their meeting of January 19, 2011, adopted by Motion to become an intervener in the Commission action. A separate action authorized up to \$50,000 to study and value the water systems for a establishing a possible municipal water utility.

Commission involvement with TWDA, Hydro and Anasazi resulted from a complaint of inequitable rates, as well as a lack of Commission approved rates for TWDA.

¹ The valuation does not include owned estate or leasehold interests held by Hydro or Anasazi.

Information provided by TWDA indicates they presently take the rates established by Hydro and Anasazi and mark them up with an administrative fee and bill the customers. The net effect is that Anasazi customers are billed \$54.40 per 1,000 gallons used, and Hydro customers are billed \$24.90 per 1,000 gallons used.

The Commission review of Hydro and Anasazi is to determine if the two entities should be classified as public service corporations, and therefore subject to the jurisdiction of the Commission for rate setting. The Town of Tusayan has intervened in the Commission proceeding in an effort to assure that reasonable, fair and equitable rates are established by the Commission.

1.3 Conclusions

- TWDA holds the CC&N to provide water service to Tusayan, but TWDA has no physical assets, as confirmed by their filings with the Commission and statements made before the Administrative Law Judge at the Commission. Therefore no payment to TWDA is contemplated.
- Hydro Resources has reported 32 customers. It reported ownership of one well and one 525,000 gallon reservoir. Hydro relies upon water lines owned by Squire Motor Inns, Incorporated ("Squire") and others to supply and move water through the system. Hydro advises the costs to use these assets and system elements are \$17.72 per 1,000 gallons.
- Based upon the technical information supplied by Hydro and other available data, a Reconstruction Cost New Less Depreciation value of \$926,764 is established for the Hydro assets.
- Anasazi has reported nine customers, with three of the customers connected to an isolated portion of distribution system receiving water from an interconnection with Hydro's distribution system. They did not provide detailed information regarding its physical facilities. Anasazi owns one well and a 400,000 gallon storage tank. The system is supplied by hauled water from Valle Canyon Water, and some purchases from Hydro. The well pump and motor has been removed from underground, and are lying on the ground at the well site.
- Financial information from Anasazi indicates the cost of hauling water is presently \$45.00 per 1,000 gallons or 82% of the billing rate of \$54.40 per 1,000 gallons.
- The Reconstruction Cost New Less Depreciation ("RCNLD") value of the Anasazi assets is \$600,409.

- The RCNLD valuation provides an indicator of the value of the Hydro and Anasazi water system assets. However, when establishing value of a water system, RCNLD is not the only consideration. Consideration should be given to the key operational analysis findings, which would tend to lower system valuation absent corrective actions.
- The physical age, condition and location of several of the major assets, including the Hydro Storage Tank, the Anasazi Storage Tank, the Anasazi Well and the Hydro Fire Pump, make it likely that they will require extensive reconstruction in the near future.
- Although beyond the scope of this report, financial analysis of expected cash flows should also be considered when establishing value. It is unknown what level of customer rates will be needed to provide municipal water service
- The Hydro distribution system cannot be operated in its present configuration without use of the Squire distribution system and other privately owned water lines.
- Common ownership of distribution system facilities is desirable and would allow for improved planning, maintenance and operation of the system without danger of conflict or misunderstandings between the various system owners.
- The Town of Tusayan should consider acquiring the Anasazi and Hydro distribution systems as part of a purchase of all distribution facilities used to provide water service to Tusayan.
- If the Town of Tusayan does not purchase the distribution facilities used, but not owned by Hydro, the Town of Tusayan will need to obtain operating agreements with Squire and other private entities to use the well capacity, reservoir storage and water mains in order to be able to operate the system in its present configuration.
- Arizona Revised Statutes §§ 9-511 through 9-514 authorizes municipalities to acquire, construct, purchase or lease facilities necessary to provide municipal water services. The statute further requires an affirmative vote of a majority of the electors voting in an election prior to the municipality providing utility service. Voter approval must be received prior to final negotiations, acquisition and financing of a municipal water utility.

- Any recommendation and approval by the voters must include authorization to borrow in excess of the acquisition costs to pay for this reconstruction and possible new construction to develop a municipal water system.

1.4 Recommendations

As a matter of public policy, and given the current actions at the Commission, it is in the best long-term interests of the Town of Tusayan for the Mayor and Council to establish a single municipal water system for the community. This allows for public discussion and direction in the management of this natural resource which is essential for the long term viability of the community.

However, such an effort is not without significant risks, since the assets of Hydro and Anasazi alone are not sufficient to operate the present municipal system. The assets owned by others as identified in this report are essential to the operations, and need to be addressed and resolved in the long-term for the entire community.

2. Introduction

2.1 Scope

This report was prepared for the Town of Tusayan ("Town") under supervision of Interim Public Management Services ("IPM") and Willdan Engineering ("Willdan"), Town Engineer for the Town. ARICOR Water Solutions LC ("ARICOR") was retained by Willdan to provide consulting services in support of the Town's effort to evaluate the potential acquisition of assets related to providing water service to residents of the Town. This report is prepared to serve as the research and basis for Town Council making an informed decision to enter into the municipal water.

IPM contacted legal representatives of Hydro-Resources, Inc. ("Hydro") and Anasazi Water Co., LLC ("Anasazi") in developing the scope of work and valuation methodology used for this report. Their consent to the methodology and scope of services was essential to ensure that future objections to this report, its content, and findings were minimized given the willingness to consider sale of assets by Hydro and Anasazi to the Town to form a municipal water system.

ARICOR's scope of work consisted of the following tasks.

- Task 1 consisted of collecting, reviewing, organizing and evaluating pertinent information pertaining to the water facilities and operations of Tusayan Water Development Association, Inc. ("TWDA"), Hydro and Anasazi.
- Task 2 consisted of developing an inventory of the facilities used to provide water service to the Town. The inventory was assembled from data collected in Task 1 and through a site visit conducted on March 31, 2011 and April 1, 2011.
- Task 3 consists of establishing a valuation for the inventoried water utility assets owned by Hydro and Anasazi using the Reproduction Cost New Less Depreciation method ("RCNLD")².
- Task 4 consisted of an operational evaluation of the water systems and facilities used to provide service to the Town.

This report documents the results of Task 1 through Task 4, provides a preliminary assessment of the water systems serving Tusayan and a Reproduction Cost New Less Depreciation value for the water assets owned by Hydro and Anasazi, and incorporates the work performed by IPM and Willdan.

² The RCNLD valuation does not include owned estate or leasehold interests held by Hydro or Anasazi.

2.2 History and Background

Tusayan is a small community of approximately 500 residents located just south of Grand Canyon National Park ("Park") south rim entrance. Historically, most water was trucked to Tusayan because there were no wells or other water supply. TWDA was formed in 1978 as a condition for receiving water from the National Park Service ("NPS") water system serving the Park. TWDA received a Certificate of Convenience and Necessity (CC&N) from the Arizona Corporation Commission ("Commission") on December 13, 1979 (Decision No. 50492). For a time TWDA purchased water from the NPS for delivery in Tusayan. Currently, TWDA does not purchase any water from the NPS.

TWDA has never owned any facilities or directly provided water service within Tusayan. Currently, TWDA purchases water from two different water distribution systems, with the serving system delivering the water directly to the customer. TWDA bills the customers for the water used at rates established by the delivering distribution systems.

According to TWDA, water service is provided to approximately 5 residential and 36 commercial customers. The two entities providing water to TWDA are Hydro and Anasazi. The Anasazi water system serves 9 customers through 10 service connections. Three of the Anasazi customers physically receive water from the Hydro distribution system via an interconnection between the Hydro distribution system and a small isolated portion of the Anasazi distribution system. The water used by these three customers is purchased from Hydro by Anasazi. The Hydro water system directly serves the remainder of TWDA's water customers, except the Grand Canyon Squire Inn owned by Squire Motor Inns, Incorporated ("Squire"). Squire owns its own distribution system and provides its own water. Figure 1 delineates the Hydro, Anasazi and Squire water service areas.

In addition to the Hydro, Anasazi and Squire distribution systems, several private entities retain ownership of the distribution systems installed to serve their properties ("private distribution systems"). Figure 2 provides a schematic representation of the location and ownership of the wells, tanks, and distribution systems serving Tusayan. Figure 3 details the segments of the Hydro distribution system and Figure 4 details the segments of the Anasazi distribution system.

In response to a complaint of inequitable rates within the TWDA CC&N and because TWDA does not have Commission approved rates, the Commission required TWDA to file a rate case using calendar year 2009 as a test year. TWDA filed a rate making application but did not request any change in its water rates. Subsequent to the rate filing, TWDA, Hydro and Anasazi have each filed applications for adjudication of their status as public service corporations with the Commission. The applications are pending before the Commission. Commission Staff has described the matters as

complex and interrelated. The Commission has consolidated the dockets for the cases and suspended the rate case portion of the TWDA application.

The Town Council received an unsolicited letter from Hydro dated December 12, 2010 indicating a willingness to consider selling the Hydro water system to the Town so that it could develop a municipal water system. On December 28, 2010 the Town advised the Commission that it was exploring taking over water service provided by TWDA within the Town.

The Town Council, at their meeting of January 19, 2011, adopted by Motion to become an intervener in the Commission action. A separate action authorized up to \$50,000 to study and value the water systems for a establishing a possible municipal water utility. On January 20, 2011, the Town filed a Motion to Intervene in the cases, informing the Commission that the Town was considering options to acquire assets related to providing water to the residents of the Town and intervening to assure that reasonable, fair and equitable rates are established by the Commission. The Commission subsequently granted the Town's request to intervene.

On March 14, 2010, Willdan engaged ARICOR to perform an evaluation of the water systems serving the Town and to perform prepare a RCNLD valuation of the water distribution facilities owned by Hydro and Anasazi.

3. Water System Description & Inventory

3.1 Data Collection

ARICOR collected, reviewed, organized and evaluated numerous sources of pertinent information pertaining to the water facilities and operations of TWDA, Hydro and Anasazi. The review included various public documents available from the Arizona Department of Environmental Quality, the Arizona Department of Water Resources, the Commission, and Coconino County. Pursuant to requests made by the Town, Hydro provided substantial information regarding its physical facilities, including detailed inventories and facilities maps. Hydro provided some financial information, but did not provide financial statements. Anasazi provided financial statements for 2008 and 2009 but did not provide detailed system information. Appendices 2 through 5 present key data relied upon in preparing this report.

On March 31, 2011 and April 1, 2011, Mr. Ray Jones, Principal of ARICOR, and Mr. Grant Anderson, Vice President Willdan, and Mr. George Pettit, IPM conducted a site visit. During the visit, meetings to discuss the water systems were held with Mr. Tom Maier, Anasazi contract operator and Mr. John Rueter, President Hydro. All major facilities sites operated by Hydro and Anasazi were observed, including the three well

sites and two water storage tank sites. Appendices 6 and 7 contain Facility Observation Reports and photographs taken during site visits.

3.2 Tusayan Water Development Association, Inc.

TWDA has no physical assets, as confirmed by their filings with the Commission and statements made before the Administrative Law Judge at the Commission. Since TWDA has no physical assets, the Town does not contemplate payment to TWDA as part of its potential acquisition of a municipal water system.

3.3 Hydro-Resources, Inc.

The Hydro water distribution system is interconnected with the Squire water distribution system and the private distribution systems and is operated by Hydro as a single distribution system (See Figure 2). The combined system has been assigned System ID 03-312 by the Arizona Department of Environmental Quality ("ADEQ"). The components of the Hydro water distribution system are detailed below.

Well Facilities

Hydro's primary source of water supply is groundwater from a well designated Tusayan #2 (ADWR 55-542928). Hydro drilled Tusayan #2 in 1994 on land leased from Halvorson-Seibold. The well is located on the west side of Tusayan directly behind Canyon Plaza Resort. Tusayan #2 currently produces approximately 63 gpm and pumps directly into the water distribution system.

Table 1 provides key data for Tusayan #2 and Table 2 provides a facility inventory for Tusayan #2.

Table 1 – Tusayan #2 Key Well Data

Year Drilled	1994
Total Depth	3,000 ft bgs
Casing Depth	2,306 ft bgs (uncased below)
Casing Size / Type	8.675" OD, J-55 Steel (24#/ft)
Static Water Level	2,420 ft bgs
Pump and Motor	75hp, Wood Group ESP
Pump Setting	2,665 ft bgs
Column Pipe	2-7/8" OD EUE, J-55 Steel

Equipment at the well site is in generally good condition, with the exception of the well shed, which is in poor condition.

Table 2 – Tusayan #2 Facility Inventory

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²
Site Work		1 lot		1994	17
Fencing	Wood Slat	200 lf		1994	17
Electrical Shed	Wood Frame	1 ea		1994	17
Electrical Service/Gear		1 lot		1994	17
Step Up Transformer		1 ea		1994	17
Motor Control Center	includes controls	1 ea		1994	17
PLC		1 ea		2009	2
Well Drilling	includes mob & demob, drilling, installation of casing, well development and testing.	3,000 lf		1994	17
Surface Casing	13-3/8" OD Steel	25 lf		1994	17
Well Casing	8-5/8" OD Steel	2,306 lf		1994	17
Well Pump and Motor	75 hp, Wood Group ESP	1 ea		2006	5
Motor Cable		2,600 lf		2006	5
Column Pipe	2-7/8" OD EUE Steel	1,100 lf		1994	17
Column Pipe	2-7/8" OD EUE Steel	1,100 lf		2002	9
Column Pipe	2-7/8" OD EUE Steel	400 lf		2006	5
Pump Shed	Wood Frame	1 ea		1994	17
Discharge Piping		1 lot		1994	17
Chlorinator	Tank and Metering Pump	1 ea		2011	0

Cells highlighted in yellow indicate estimated data.

¹ Based on public information and data provided by water provider.

² Indicates actual age for individual assets. Indicates weighted average age of installed assets for summary lines.

In addition to Tusayan #2, Hydro receives water from a second groundwater well, Squire #1. Squire #1 is owned by Squire with water produced in excess of the needs of Squire being used by Hydro. Details for the Squire Well are provided in Section 3.5.

Storage Facilities

Hydro owns a 525,000 gallon storage tank located on United States Forest Service land ("Tank Site") pursuant to a Special Use Permit held by Squire. The Tank Site is located approximately 0.2 miles southeast of Tusayan at an elevation of approximately 6,670 ft. The tank serves as elevated storage for the Hydro distribution system. The tank is a 32' tall bolt up tank built in 1975. Significant leakage was observed at several seams of the tank. The system operator reports that the tank needs a new floor and rehabilitation in the near future. Table 3 provides a facility inventory for the Hydro storage tank.

Table 3 – Hydro Storage Tank Facility Inventory

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²
Bolted Steel Tank		525,000 gal	53' dia x 32' tall	1975	36
Site Work		1 lot		1975	36
Foundation (gravel)		1 ea	53' dia x 4" thick	1975	36
Feed Piping		1 lot		1975	36

In addition to the owned Hydro tank, Hydro uses 2.0 million gallons of storage capacity in a 3.0 million gallon welded steel tank owned by Squire. The Squire tank is located on the Tank Site immediately adjacent to the Hydro tank. Details for the Squire tank are provided in Section 3.5.

Distribution System

The Hydro distribution system consists of PVC piping of 2", 4", 6" and 8" diameter (See Figure 2). The piping was installed between 1984 and 2000. The Hydro distribution system consists of five separate sections of piping interconnected by sections of privately owned distribution piping, including the Squire distribution system. Table 4 provides a summary of the Hydro distribution system components.

Table 4 – Hydro Distribution System Inventory

Component	Quantity/Size
Mains	
8" PVC	4,722 lf
6" PVC	3,373 lf
4" PVC	743 lf
2" PVC	400 lf
Hydrants/Valves/Meters	
Hydrants	6 ea
8" Valve	15 ea
6" Valve	14 ea
4" Valve	4 ea
2" Valve	1 ea
Meter	24 ea

In addition to the piping system, Hydro constructed and owns a diesel powered fire pump. The fire pump was installed in 1997 and is located at the Tank Site. The fire pump is manually operated when needed to boost pressure and flow in the distribution system above that which can be supplied through gravity drainage of the storage tanks.

Table 5 – Hydro Fire Pump Facility Inventory

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²
Fire Booster Pump	At Storage Tank Site				
Pump Unit Complete		2,500 gpm		1997	14
Drive Engine		200 hp		1997	14
Pump Controls		1 lot		1997	14
Piping		1 lot		1997	14
Fuel Tank		250 gal		1997	14
Pump Building		225 sf	15' x 15'	1997	14
Site Work		1 ea		1997	14
Yard Piping	At Storage Tank Site				
Feed Piping		50 ft		1997	14
Valve Vault		1 lot		1997	14
8" Check Valve		1 ea		1997	14
6" Check Valve		1 ea		1997	14
4" Meter		1 ea		1997	14
Piping/Valves		1 lot		1997	14

Other

Hydro has paid ADOT approximately \$26,000 for the installation of two pipe ready sleeves under Highway 64. The sleeves will be installed as part of a planned highway widening project.

3.4 Anasazi Water Co., LLC

The Anasazi water distribution system is an independent water distribution system originally constructed to serve the Red Feather Lodge in approximately 1964. The system was expanded to serve other properties affiliated with the Red Feather Lodge ownership. (See Figure 1 and Figure 2). The system has been assigned System ID 03-048 by ADEQ. The components of the Anasazi water distribution system are detailed below.

Well Facilities

Anasazi drilled a groundwater well (ADWR # 55-560179) in 1997 on land owned by Red Feather Properties Ltd Partnership. The well is located on the east side of Tusayan behind the McDonalds. The Anasazi well is out of service reportedly due to damage incurred in an electrical storm. Prior to being removed from service, the Anasazi well was producing approximately 15 gpm. The well pumps to the Anasazi storage tank.

Table 6 provides key data for the Anasazi Well and Table 7 provides a facility inventory for the Anasazi Well.

Table 6 – Anasazi Well Key Well Data

Year Drilled	1997
Total Depth	3,120 ft bgs
Casing Depth	3,100 ft bgs
Casing Size / Type	8" & 7" Steel
Pump and Motor	Out of service
Pump Setting	Out of service
Column Pipe	2-3/8" OD EUE, J-55 Steel

The well pump and motor, electrical cable and column pipe have been removed from the well and are stored at the well site. Other equipment at the well site appears to be in fair to good condition.

Table 7 – Anasazi Well Facility Inventory

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²
Site Work		1 lot		1999	12
Fencing	Chain Link	1 lot		1999	12
Electrical Shed		1 ea		1999	12
Pump Shed		1 ea		1999	12
Electrical Service/Gear		1 lot		1999	12
Step Up Transformer		1 ea		1999	12
Motor Control Center		1 ea		1999	12
Well Drilling		3,120 lf		1997	14
Well Casing	8" dia.	3,100 lf		1997	14
Well Pump and Motor		1 ea		2006	5
Motor Cable		2,600 lf		1999	12
Column Pipe	2-3/8" OD EUE Steel	2,600 lf		1999	12
Discharge Piping		1 lot		1999	12

Storage Facilities

Anasazi owns a 400,000 gallon storage tank located on United States Forest Service land pursuant to a Special Use Permit ("Anasazi Tank Site"). The Anasazi Tank Site is located approximately 0.12 miles south of the Anasazi Well at an elevation of approximately 6,655 ft. The tank serves as elevated storage for the Anasazi distribution system. The tank is a 24' tall welded steel tank. The actual date of construction has not been provided, but is estimated to be approximately 1975. Minor leakage was observed the well fill connection to the tank. Table 8 provides a facility inventory for the Anasazi storage tank.

Table 8 – Anasazi Storage Tank Facility Inventory

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²
Welded Steel Tank		400,000 gal	53' dia x 24' tall	1975	36
Site Work		1 lot		1975	36
Foundation (Tension)		1 ea	53' dia x 4" thick	1975	36

Distribution System

The Anasazi distribution system consists of PVC piping believed to be primarily 8" diameter (See Figure 2) with a 2" PE line connecting the well to the storage tank and an isolated section of 2" PVC that is interconnected with the Hydro distribution system. Anasazi reports that the 8" piping was replaced with new piping in 2002. Table 9 provides a summary of the distribution system components.

Table 9 – Hydro Distribution System Inventory

Component	Quantity/Size
Mains	
8" PVC	2,250 lf
2" PE	725 lf
2" PVC	900 lf
Hydrants/Valves/Meters	
Valves	15 ea
Hydrants	4 ea
Meter	10 ea
Service Line	9 ea

In addition to the piping system, Anasazi owns a hauled water booster station. The booster station is located behind the Red Feather Inn. The booster station is used to unload water tankers delivering water to the Anasazi Water distribution system. The age of the booster station is unknown. It is assumed to have been constructed in 1994. Table 10 provides a facility inventory for the hauled water booster station.

Table 10 – Anasazi Hauled Water Booster Station Facility Inventory

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²
Pump Unit		500 gpm		1994	17
Piping Valves		1 lot		1994	17
Pump Controls		1 lot		1994	17
Enclosure		1 lot		1994	17

3.5 Other Water Facilities

Grand Canyon Squire Inn

Squire owns a well, storage tank and distribution system constructed to serve Grand Canyon Squire Inn. The well, designated Squire #1 (ADWR # 55-523284), was drilled in 1989 and was the first well drilled in Tusayan. The well is located on the west side of Tusayan directly behind Grand Canyon Squire Inn. Squire #1 currently produces approximately 60 gpm and pumps directly into the Squire water distribution system. Equipment at the well site is in generally good condition. Table 11 provides key data for Squire #1.

Table 11 – Squire #1 Key Well Data

Year Drilled	1989
Total Depth	3,108 ft bgs
Casing Depth	2,320 ft bgs (uncased below)
Casing Size / Type	8.675" OD, J-55 Steel (24#/ft)
Pump and Motor	Wood Group ESP
Pump Setting	Unknown
Column Pipe	2-7/8" OD EUE, J-55 Steel

The squire distribution system consists of a system loop around and through the Squire premises and an 8" water line from the Squire property to the Tank Site. Squire owns a 3.0 million gallon welded steel water storage tank located at the Tank Site. The tank was constructed in 1991. Squire allows Hydro to use its waterlines to take delivery of water from Squire #1 and to interconnect various sections of the Hydro distribution system to allow water delivery to Hydro's customers and to allow Hydro to use its storage tank capacity at the Tank Site.

ADOT Airport

The ADOT Grand Canyon National Park Airport ("Airport") public water system (ADEQ System ID 03-010) is supplied from the Hydro system through a 4" connection located just south of the Squire Inn. The Airport has a 375,000 gallon underground domestic storage tank and two above ground 1.4 million gallon storage tanks. The Airport receives water from Hydro only during low season (winter) when Tusayan water demand is low. Throughout the high season (summer) the Airport relies exclusively on water from its on-site storage system. In case of emergency, water can be manually pumped from the Airport system to the Hydro system. The Airport system has a generator capable of running the 2- 250 gpm domestic pumps and the 2-1,250 gpm fire pumps.

Other Private Systems

Many individual property owners have constructed and maintain the waterlines and fire hydrants within their property perimeters e.g., Canyon Plaza Suites, Holiday Inn Express, Squire Inn, Grand Hotel. The privately owned piping is integrated with the Hydro distribution system and operated as a part of the Hydro distribution system. Hydro reports that its customers own their own service lines.

4. Operational Evaluation of Water System**4.1 Hydro System ID 03-312****Overall System Description**

The Hydro water distribution system is interconnected with the Squire water distribution system and the private distribution systems constructed by end users and is operated by Hydro as a single distribution system ("combined system"). Absent the interconnections with the Squire water distribution system and the private distribution systems, the Hydro distribution system would consist of five separate sections of piping, none interconnected with each other or Hydro's storage tank. The provision of water service to customers connected to Hydro's water distribution system could not occur without Hydro's use of the Squire water distribution system and the private distribution systems.

The combined system consists of two deep water wells, a pipe network and two water storage tanks serving as elevated storage for the combined system. The wells are relatively expensive low capacity wells due to the geologic setting and depth to water in Tusayan. The wells produce approximately 60 gallons per minute each from a depth to water of approximately 2,400 feet below ground surface. As is typical of water systems with expensive low capacity wells, the combined system contains substantial storage capacity (combined 3,525,000 gallons) to allow well production and demand to be balanced over an extended period of time.

There does not appear to be a written agreement between Hydro and Squire or Hydro and the end users documenting the ownership and maintenance responsibilities for the combined system. Additionally, Hydro does not appear to have formal easements for its water lines. Most water distribution systems are wholly owned by the public service corporation or municipality that provides the water utility service to its customers. Common ownership is desirable and would allow for improved planning, maintenance and operation of the system without danger of conflict or misunderstandings between the various system owners.

Water Supply and Storage

The source of supply for the combined water system is groundwater provided by Squire #1 and Tusayan #2. Power is provided by Arizona Public Service Company. Water is

disinfected at each well head using 12.5% liquid sodium hypochlorite solution injected by chemical metering pumps. The wells pump directly into the distribution system at each well's location with the Hydro and Squire storage tanks serving as elevated storage for the system. If overall system demand is less than well production, the wells pump excess water into storage, causing storage levels to rise. Conversely, if overall system demand exceeds well production, water flows by gravity from storage into the distribution system, causing water storage levels to fall. The combined system storage of 3,525,000 gallons is adequate to allow well production and demand to be balanced over an extended period of several weeks or months, if necessary.

Elevated storage is a desirable component in a water distribution system. Because of the elevated storage the system does not need booster stations, backup power, sophisticated monitoring equipment or other complex and expensive components found in water systems that do not have elevated storage. Due to the use of elevated storage, the combined water system provides simple, efficient and reliable service to residents and businesses in Tusayan.

Hydro purchases water from Squire #1 at \$17.72 per 1,000 gallons from Squire. This purchase price for water is reported by Hydro to be an all inclusive price for purchase of the water and "leasing" use of the Squire distribution system and 2.0 million gallons of storage in the Squire storage tank. There does not appear to be a written agreement between Hydro and Squire.

Emergency backup water is reported to be available in Valle, 23 miles to the south of Tusayan. A semi-truck and tanker is owned by Hydro in case hauling might be needed.

Based on a numerical analysis provided by Hydro, Tusayan #2 is not adequate to provide service to the Hydro customers without being supplemented by Squire #1. The analysis indicates that the combined water supply from Squire #1 and Tusayan #2 is adequate to supply Hydro's customers, Squire and the Airport. Additionally, the analysis indicates that the Anasazi customers could also be supplied from the combined output of the two wells.

The analysis assumes both wells are available and does not consider the effect of a well outage. A comprehensive extended period analysis of reliable production capability, water hauling capability and storage capacities is needed to definitively determine the reliable capacity of the combined system and ascertain whether additional customers can be served without system improvements.

System Interconnections

Airport water system (System ID 03-010) is interconnected to the Hydro system through a metered system interconnect. Water is provided to the Airport during the

winter months when excess water is available from the combined system. The Airport system relies on on-site storage during the summer months. The Airport and Hydro systems are operated independently. In case of emergency, Hydro reports that water can be manually pumped from the Airport system to the Hydro system. There does not appear to be a written agreement between Hydro and the Airport.

Fire Flow

Hydro owns and operates a diesel powered fire pump at the Tank Site. The fire pump is manually operated when needed to boost pressure and fire flow in the distribution system above that which can be supplied through gravity drainage of the storage tanks. The fire pump is sized to provide 2,500 gpm at a pressure of 80 psi. Operating a pump of this size at the tank site has proven problematic. The operator reports having to manually manipulate valves and discharge water back to the tank through the overflow piping in order to control flow and pressure.

The fire pump appears to be somewhat oversized and not optimally located to work well with the distribution system. Hydraulic modeling of the combined system is needed to fully evaluate fire flow capabilities and to determine if the existing fire pump should be modified, relocated or replaced.

Hydro owns six fire hydrants in the community. Other hydrants were constructed and are maintained by individual property owners at their locations. Hydro Resources has no agreements with property owners in regard to these hydrants. Hydro reports that property owners are free to use whatever flow or pressure might be available but Hydro makes no warranties or guarantees of availability or flow. Hydro reports that fire flow tests have been conducted by the Tusayan Fire Department.

System Operation and Compliance

Hydro administers, maintains and operates the combined system on a daily basis, by monitoring and regulating production and storage, reading meters, and making repairs as required. Hydro employs one full time employee, a certified operator and some part time employees. Hydro uses contractors when needed in case of repair or construction. Well equipment maintenance and replacement is contracted out.

Required water quality sampling per the Safe Drinking Water Act and the requirements of ADEQ is performed by Hydro for the combined system. The system participates in the ADEQ Monitoring Assistance Program with the certified operator performing other required sampling. Microbiological testing is taken monthly and lab testing is performed in Flagstaff at Nortest Analytical. The system is in satisfactory compliance at this time with no known history of major violations.

TWDA purchases the water delivered to customers connected to the Hydro system and bills the customers for the water used. Hydro currently charges \$24.50 per 1,000 gallons. The cost of the water is passed on to the customer with an additional charge of a \$0.40 per 1,000 gallons to cover TWDA administrative costs. TWDA bills customers connected to the Hydro system for water used each month.

4.2 Anasazi System ID 03-048

Overall System Description

The Anasazi water distribution system was the original water distribution system constructed in Tusayan. It is a relatively simple system constructed to serve 7 customers in central Tusayan. The system consists of a deep water well, a simple pipe network and a water storage tank serving as elevated storage for the system. It is not known if Anasazi has formal easements for its water lines.

Anasazi serves three additional customers, the South Rim Mobile Home Park, the Delaware North General Store and the Tusayan Gas and Convenience Store, from an isolated portion of distribution system that is interconnected with the Hydro distribution system. All water delivered to these three customers is purchased from Hydro.

Water Supply and Storage

The Anasazi well is a relatively expensive well with a reported capacity of only 15 gpm. Due to the geologic setting and depth to water in Tusayan, wells tend to be of relatively low capacity. However, the Anasazi well capacity is only about 25% of the capacity of the two other wells in Tusayan. The well has a history of low production and was redeveloped shortly after being drilled. The well is believed to pump directly to the storage tank.

The storage tank capacity is 400,000 gallons and serves as elevated storage for the system. Elevated storage is a desirable component in a water distribution system. Because of the elevated storage the Anasazi system does not need booster stations, backup power, sophisticated monitoring equipment or other complex and expensive components found in water systems that do not have elevated storage. However, Anasazi's storage tank is 8' shorter than Hydro's storage tanks and installed at an elevation approximately 15 feet lower than Hydro's tanks, causing the Anasazi and Hydro distribution systems operate at different hydraulic grade lines. The hydraulic grade line difference will make interconnecting the systems and fully utilizing the Anasazi storage capacity difficult or impossible.

The Anasazi well was reportedly taken out of service in December of 2009. Water service records provided by Anasazi indicate the well has been out of service since at least December 2008. Due to the well outage, Anasazi has been hauling water from the Valle Canyon Water Company located in Valle, Arizona. The purchase price for the

hauled water is \$45.00 per 1,000 gallons. Hauled water is unloaded directly into the Anasazi distribution system through a dedicated pumping station.

Based on a numerical analysis of production and sales data, even if operational, the Anasazi well is not adequate to meet the summertime demands of the properties connected to the Anasazi system without some amount of water hauling.

Fire Flow

The Anasazi system is equipped with fire hydrants. Fire flow is provided by gravity flow from the Anasazi water storage tank.

System Operation and Compliance

Anasazi uses a contract operator to operate the water system. The system participates in the ADEQ Monitoring Assistance Program with the certified operator performing other required sampling. The system is in satisfactory compliance at this time with no known history of major violations.

TWDA purchases the water delivered to customers connected to the Anasazi system and bills the customers for the water used. Anasazi currently charges \$54.00 per 1,000 gallons. The cost of the water is passed on to the customer with an additional charge of a \$0.40 per 1,000 gallons to cover TWDA administrative costs. TWDA bills customers connected to the Anasazi system for water used each month.

5. Valuation of Water System

Using the data and information discussed in detail in Section 3.1, ARICOR established a detailed inventory of the Hydro and Anasazi water distribution system assets³, including the age of each asset. ARICOR developed an engineering estimate of the reconstruction cost of the assets using a variety of sources including, RS Means Construction Cost Data, contractor estimates, supplier interviews and quotations, as well as its experience with similar facilities. Detailed cost data is presented in Appendix 8.

5.1 RCNLD Hydro-Resources, Inc.

A summary of the Reconstruction Cost New Less Depreciation ("RCNLD") analysis for Hydro is presented in Table 12. The detailed inventory and RCNLD for Hydro is presented in Appendix 1.

³ Owned real estate and leasehold interests were not valued.

Table 12 – RCNLD Hydro-Resources, Inc.

Site / Component	Location / Description	Year In Service ¹	Age ²	Estimated Service Life ³	Depreciation Rate ⁴	Reconstruction Cost ⁵	Depreciation ⁶	RCNLD ⁷	Comments
Storage Tank	0.21 miles, southeast of intersection of Highway 64 and Forest Service Road 302.	1975	36.0	40.0	2.50%	\$ 550,000	\$ 495,000	\$ 55,000	Tank leaking at several seam locations. Operator reports tank needs new floor and rehabilitation in near future. Tank interior not viewed.
Fire Booster Pump	At Storage Tank Site	1997	14.0	27.0	4.12%	\$ 131,000	\$ 75,600	\$ 55,400	Firetrol, Inc. package pumping unit, Catalog Number FTA1100-EL24N. Aurora Pump, 1,750 rpm, 2,500 gpm @ 185' head. Operator reports manual operation required. All components in good condition. Pump design discharge pressure appears too high for application.
Yard Piping	At Storage Tank Site	1997	14.0	40.0	2.50%	\$ 36,050	\$ 12,618	\$ 23,433	Yard piping requires modification to meet ADEQ sanitary requirements. Piping configuration not suitable for automatic operation of fire pump.
Well No. 2	Located on leased private land on the east side of Tusayan directly behind the Canyon Plaza Resort.	1994	15.6	42.0	4.07%	\$ 1,092,925	\$ 471,781	\$ 621,144	ADWR 55-542928 Equipment at the well site is in generally good condition, excepting the well shed, which is in poor condition.
Mains			21.4	50.0	2.00%	\$ 244,845	\$ 104,737	\$ 140,108	
Hydrant/Valves/Meters			20.7	46.3	2.50%	\$ 56,450	\$ 27,573	\$ 28,877	
TOTAL						\$ 2,111,270	\$ 1,187,308	\$ 923,962	

¹ Based on public information and data provided by water provider.

² Indicates actual age for individual assets. Indicates weighted average age of installed assets for summary lines.

³ Average expected life of asset type, adjusted based on physical observation of asset condition.

⁴ Annual depreciation rate of asset.

⁵ Estimate of Reconstruction Cost on new asset in 2011 dollars.

⁶ Accumulated depreciation of asset base on age x depreciation rate.

⁷ Reconstruction Cost Less Depreciation.

As indicated in Table 12, the RCNLD for the Hydro system is \$923,962.

5.2 RCNLD Anasazi Water Co., Inc.

A summary of the RCNLD for Anasazi is presented in Table 13. The detailed inventory and RCNLD for Anasazi is presented in Appendix 1.

Table 13 – RCNLD Anasazi Water Company, LLC

Site / Component	Location / Description	Year In Service ¹	Age ²	Estimated Service Life ³	Depreciation Rate ⁴	Reconstruction Cost ⁵	Depreciation ⁶	RCNLD ⁷	Comments
Storage Tank		1975	36.0	40.0	2.50%	\$ 420,000	\$ 378,000	\$ 42,000	Tank appears to be in generally good condition. Evidence of leakage at well fill line. Actual age unknown.
Hauled Water Booster Pump	Behind Red Feather Inn	1994	17.0	29.7	3.79%	\$ 14,500	\$ 9,350	\$ 5,150	
Anasazi Well		1999	13.1	24.5	5.11%	\$ 1,057,950	\$ 609,546	\$ 448,404	ADWR 55-56019 Well is currently out of service. Well pump and motor, column pipe and electrical cable stored at well site.
Mains		0	8	45.5	2.00%	\$ 80,500	\$ 15,270	\$ 65,230	Detailed maps unavailable. Actual age and material of most mains unknown.
Hydrant/Valves/Meters		0	12.5	47.3	2.3%	\$ 56,750	\$ 17,125	\$ 39,625	Detailed maps unavailable. Actual age and number of valves unknown.
TOTAL						\$ 1,629,700	\$ 1,029,291	\$ 600,409	

Cells highlighted in yellow indicate estimated data.

¹ Based on public information and data provided by water provider.

² Indicates actual age for individual assets. Indicates weighted average age of installed assets for summary lines.

³ Average expected life of asset type, adjusted based on physical observation of asset condition.

⁴ Annual depreciation rate of asset.

⁵ Estimate of Reconstruction Cost on new asset in 2011 dollars.

⁶ Accumulated depreciation of asset based on age x depreciation rate.

⁷ Reconstruction Cost Less Depreciation.

As indicated in Table 13, the RCNLD for the Anasazi system is \$600,409.

6. Conclusions and Recommendations

TWDA holds the CC&N to provide water service to the Town but does not own any facilities. There are two physically separate distribution systems utilized to provide water service to the Town. Anasazi owns and operates one distribution system. Hydro operates, but only partially owns, the other distribution system. The key findings from the operational evaluation of the systems are summarized below.

➤ Hydro distribution system -

- Is actually combined system consisting of the Hydro distribution system, the Squire distribution system and other privately owned distribution facilities. The combined distribution system consists of two wells, two storage tanks and a piping network.
- The Squire distribution system and the privately owned distribution facilities are critical components of the combined system. The Hydro distribution system cannot function without interconnection with the Squire and private distribution facilities.
- The fire pump appears to somewhat oversized and not optimally located to work well with the distribution system.
- Hydro's well, Tusayan #2, is not adequate to provide service to the combined system without being supplemented by Squire #1 owned by Squire.
- Hydro uses 2.0 million gallons of storage in Squire's 3.0 million gallon water storage tank.

- The specific terms of Hydro's use of Squire's well, storage tank and distribution facilities are not clearly documented.
 - There is a lack of formal easements for the water lines.
 - There is a lack of documentation regarding the ownership and maintenance responsibilities for the privately owned distribution facilities.
 - Due to the age and condition of the storage tank, fire pump and piping significant reconstruction is likely to be required in the near future.
- Anasazi distribution system -
- Consists of well, storage tank and piping owned by Anasazi.
 - Three Anasazi customers are served by an isolated portion of distribution system that is interconnected with and receives water from the Hydro distribution system.
 - The Anasazi well is not currently operational and has a reported history of low production, causing reliance on hauled water to meet demands. The current condition of the well is unknown.
 - The Anasazi system is currently reliant upon hauled water for all customer demands, except for the three customers that receive water from the Hydro distribution system.
 - Anasazi's storage tank is 8' shorter than Hydro's storage tanks and installed at an elevation approximately 15 feet lower than Hydro's tanks, causing the Anasazi and Hydro distribution systems operate at different hydraulic grade lines. The hydraulic grade line difference will make interconnecting the systems and fully utilizing the Anasazi storage capacity difficult or impossible.
 - Due to the unknown condition of the well and the age of the storage tank significant reconstruction is likely to be required in the near future.

RCNLD valuations were established for the Hydro and Anasazi water distribution systems. The RCNLD valuation is summarized in Table 14.

Table 14 – RCNLD Valuation Summary

System	RCNLD Valuation
Hydro-Resources, Inc.	\$923,962
Anasazi Water Company, LLC	\$600,409
Total RCNLD Valuation	\$1,524,371

The RCNLD valuation provides an indicator of the value of the Hydro and Anasazi water systems. However, when establishing value of a water system, RCNLD is not the only consideration. Consideration should be given to the key findings of the operational

analysis noted above, which would tend to lower system valuation absent corrective actions.

Although beyond the scope of this report, financial analysis of expected cash flows should also be considered. It is unknown what level of customer rates will be needed to provide municipal water service.

Of particular note in this instance is the reliance of the Hydro distribution system on the Squire distribution system and other privately owned distribution facilities. The Squire distribution system and the other privately owned distribution facilities are critical components of the combined system. The degree of interconnection and reliance is such that the Hydro distribution system cannot be successfully operated without use of the Squire distribution system and the other privately owned distribution facilities.

Common ownership of distribution system facilities is desirable and would allow for improved planning, maintenance and operation of the system without danger of conflict or misunderstandings between the various system owners.

The Town should consider acquiring the Anasazi and Hydro distribution systems as part of a purchase of all distribution facilities used to provide water service to the Town.

If the Town does not purchase the distribution facilities used, but not owned, by Hydro, the Town will need to obtain operating agreements with Squire and other private entities to use the well capacity, reservoir storage and water mains in order to be able to operate the system in its present configuration.

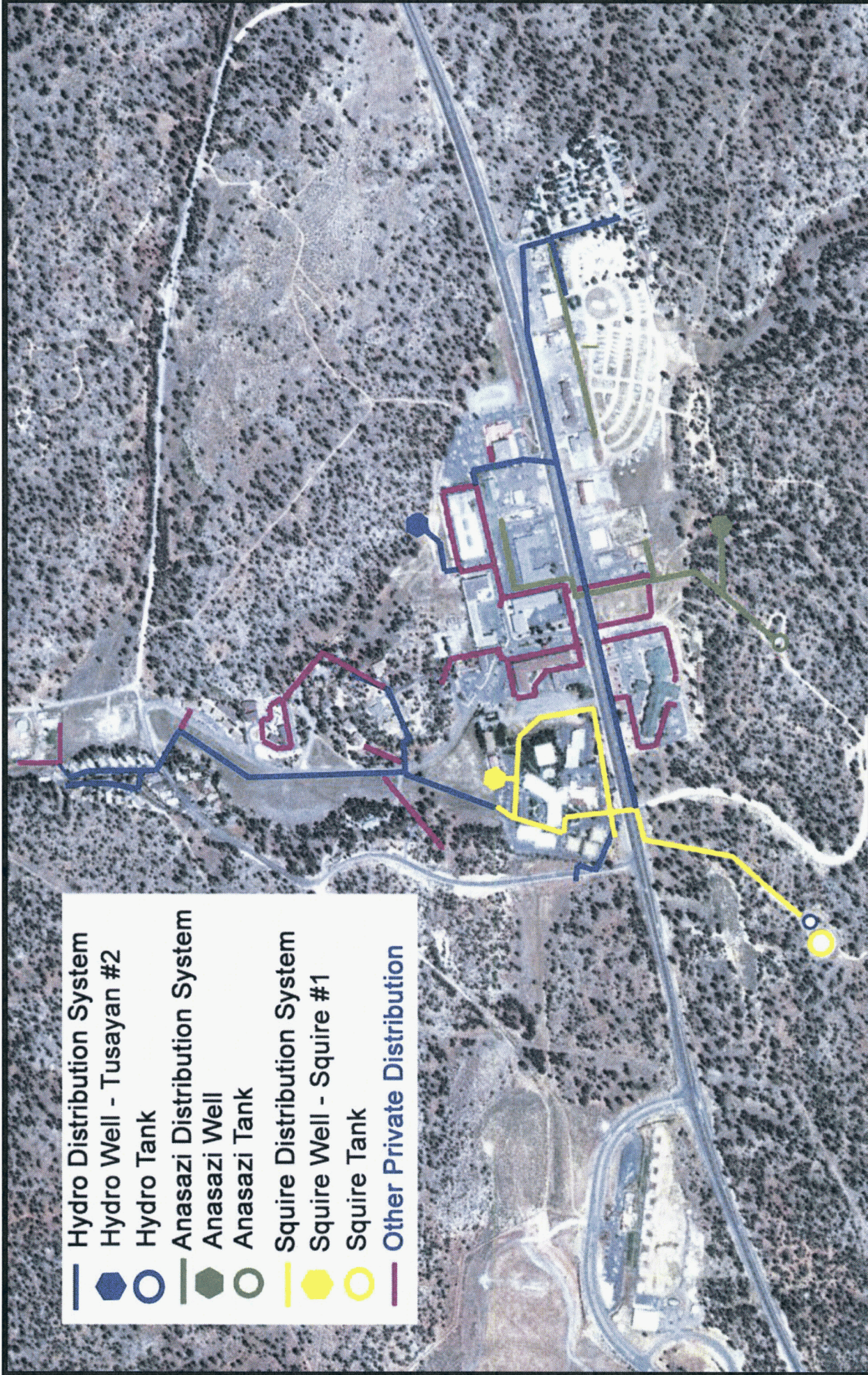
Arizona Revised Statutes §§ 9-511 through 9-514 authorizes municipalities to acquire, construct, purchase or lease facilities necessary to provide municipal water services. The statute further requires an affirmative vote of a majority of the electors voting in an election prior to the municipality providing utility service. Voter approval must be received prior to final negotiations, acquisition and financing of a municipal water utility.

Any recommendation and approval by the voters must include authorization to borrow in excess of the acquisition costs to pay for likely near term reconstruction efforts and allow for possible new construction.

FIGURES



- Property Served by Anasazi
- Property Connected to Hydro System Receiving Service from Anasazi
- Property Served by Squire
- Remaining Property Served by Hydro





ARICOR
Water Solutions

Hydro-Resources, Inc. – Distribution Segments

FIGURE:

3

Tusayan Municipal Water Study

DATE:

07-25-11



FIGURE:

4

DATE:
07-25-11

Anasazi Water Co., LLC – Distribution Segments

Tusayan Municipal Water Study

ARICOR
Water Solutions

APPENDIX 1

Detailed Inventory of Facilities and Reconstruction Cost New Less Depreciation

Hydro-Resources, Inc.
Detailed Inventory of Facilities and Reconstruction Cost New Less Depreciation

7/25/2011

Site / Component	Location / Description	Quantity / Size	Dimensions	Year in Service ¹	Age ²	Estimated Service Life ³	Depreciation Rate ⁴	Unit Cost	Reconstruction Cost ⁵	Depreciation ⁶	RCMD ⁷	Comments
Storage Tank	0.21 miles, southeast of intersection of Highway 64 and Forest Service Road 302.	525,000 gal	53' dia x 32' tall	1975	36.0	40.0	2.50%		\$	\$ 550,000	\$ 495,000	Tank leaking at several seam locations. Operator reports tank needs new floor and rehabilitation in near future. Tank interior not viewed.
Bolted Steel Tank Site Work Foundation (gravel) Feed Piping		525,000 gal 1 lot 1 ea 1 lot	53' dia x 32' tall 53' dia x 4" thick	1975 1975 1975 1975	36 36 36 36	40 40 40 40	2.50% 2.50% 2.50% 2.50%	\$ 1.00 10,000.00 10,000.00 5,000.00	\$ 525,000 10,000 10,000 5,000	\$ 472,500 9,000 9,000 4,500	\$ 52,500 1,000 1,000 500	
Fire Booster Pump	At Storage Tank Site			1997	14.0	27.0	4.12%		\$	\$ 131,000	\$ 75,600	Firetrol, Inc. package pumping unit, Catalog Number FTA1100-EL24N. Aurora Pump, 1,750 rpm, 2,500 gpm @ 185' head. Operator reports manual operation required. All components in good condition. Pump design discharge pressure appears too high for application.
Pump Unit Complete Drive Engine Pump Controls Piping Fuel Tank Pump Building Site Work		2,500 gpm 200 hp 1 lot 1 lot 250 gal 225 sf 1 ea		1997 1997 1997 1997 1997 1997	14 14 14 14 14 14	20 20 20 40 40 40	5.00% 5.00% 5.00% 2.50% 2.50% 2.50%	\$ 10.00 250.00 10,000.00 10,000.00 10.00 60.00 20,000.00	\$ 25,000 50,000 10,000 10,000 2,500 13,500 20,000	\$ 17,500 35,000 7,000 9,500 875 4,725 7,000	\$ 7,500 15,000 3,000 6,500 1,625 8,775 13,000	
Yard Piping	At Storage Tank Site			1997	14.0	40.0	2.50%		\$	\$ 36,050	\$ 12,618	Yard piping requires modification to meet ADEQ sanitary requirements. Piping configuration not suitable for automatic operation of fire pump.
Feed Piping Valve Vault 8" Check Valve 6" Check Valve 4" Meter Piping/Valves	From tank to Pump Bldg.	50 ft 1 lot 1 ea 1 ea 1 ea 1 lot		1997 1997 1997 1997 1997 1997	14 14 14 14 14 14	40 40 40 40 40 40	2.50% 2.50% 2.50% 2.50% 2.50% 2.50%	\$ 50.00 8,000.00 1,800.00 1,350.00 2,400.00 20,000.00	\$ 2,500 8,000 1,800 1,350 2,400 20,000	\$ 875 2,800 630 473 840 7,000	\$ 1,625 5,200 1,170 878 1,560 13,000	
Well No. 2	Located on leased private land on the east side of Tusayan directly behind the Canyon Plaza Resort.			1994	15.6	42.0	4.07%		\$	\$ 1,092,925	\$ 471,781	ADWR 55-542928 Equipment at the well site is in generally good condition, excepting the well shed, which is in poor condition.
Site Work Fencing Electrical Shed Step Up Transformer Motor Control Center PLC	Wood Slat Wood Frame includes controls includes mob & demob, drilling, installation of casing, well development and testing.	1 lot 200 lf 1 ea 1 lot 1 ea 1 ea 1 ea		1994 1994 1994 1994 1994 2009	17 17 17 17 17 2	40 20 40 25 25 15	2.50% 5.00% 2.50% 2.50% 4.00% 6.67%	\$ 20,000.00 20.00 15,000.00 55,000.00 15,000.00 10,000.00	\$ 20,000 4,000 15,000 55,000 15,000 10,000	\$ 8,500 3,400 23,375 10,200 10,200 1,333	\$ 11,500 600 8,625 31,625 4,800 4,800 8,667	
Well Drilling Surface Casing Well Casing Well Pump and Motor Motor Cable	Installation of casing, well development and testing. 13-3/8" OD Steel 8-5/8" OD Steel 75 hp, Wood Group ESP	3,000 lf 25 lf 2,306 lf 1 ea 2,600 lf		1994 1994 1994 2006 2006	17 17 17 5 5	50 50 50 5 12	2.00% 2.00% 2.00% 20.00% 8.33%	240.00 75.00 25.00 100,000.00 5.00	720,000 1,875 57,650 100,000 13,000	244,800 638 19,601 100,000 5,417	475,200 1,238 38,049 - 7,583	

Hydro-Resources, Inc.
Detailed Inventory of Facilities and Reconstruction Cost New Less Depreciation

7/25/2011

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²	Estimated Service Life ³	Depreciation Rate ⁴	Unit Cost	Reconstruction Cost ⁵	Depreciation ⁶	RCND ⁷	Comments
Column Pipe	2-7/8" OD EUE Steel	1,100 lf		1994	17	17	5.88%	10.00	11,000	11,000	-	
Column Pipe	2-7/8" OD EUE Steel	1,100 lf		2002	9	17	5.88%	11.00	12,100	6,406	5,694	
Column Pipe	2-7/8" OD EUE Steel	400 lf		2006	5	17	5.88%	12.00	4,800	1,412	3,388	
Pump Shed	Wood Frame	1 ea		1994	17	20	5.00%	10,000.00	10,000	8,500	1,500	
Discharge Piping		1 lot		1994	17	40	2.50%	25,000.00	25,000	10,625	14,375	
Chlorinator	Tank and Metering Pump	1 ea		2011	0	5	20.00%	3,500.00	3,500	-	3,500	
Mains					21.4	\$ 50	2.00%		\$ 244,845	\$ 104,737	\$ 140,108	
Segment B	8" Sch 40 PVC	1,113 lf		1986	25	50	2.00%	30.00	33,390	16,695	16,695	
Segment C	8" C-900 PVC	732 lf		1997	14	50	2.00%	35.00	25,620	7,174	18,446	
Segment D	8" Sch 40 PVC	480 lf		1986	25	50	2.00%	30.00	14,400	7,200	7,200	
Segment E	6" Sch 40 PVC	1,351 lf		1992	19	50	2.00%	30.00	40,530	15,401	25,129	
Segment F	4" C-900 PVC	313 lf		2000	11	50	2.00%	18.00	5,634	1,239	4,395	
Segment G	2" Sch 40 PVC	400 lf		1984	27	50	2.00%	10.00	4,000	2,160	1,840	
Segment H	6" Sch 40 PVC	2,022 lf		1984	27	50	2.00%	18.00	36,396	19,654	16,742	
Segment I	8" Sch 40 PVC	532 lf		1984	27	50	2.00%	30.00	15,960	8,618	7,342	
Segment J	8" Sch 40 PVC	820 lf		1984	27	50	2.00%	30.00	24,600	13,284	11,316	
Segment K	8" C-900 PVC	727 lf		2000	11	50	2.00%	35.00	25,445	5,598	19,847	
Segment L	8" C-900 PVC	318 lf		1984	27	50	2.00%	35.00	11,130	6,010	5,120	
Hydrant/Valves/Meters		430 lf		2000	11	50	2.00%	18.00	7,740	1,703	6,037	
Hydrant (1993)		3 ea		1993	18	50	2.00%	\$ 2,500.00	\$ 7,500	\$ 27,573	\$ 28,877	
Hydrant (1997)		1 ea		1997	14	50	2.00%	\$ 2,500.00	\$ 2,500	\$ 700	\$ 1,800	
Hydrant (1984)		2 ea		1975	36	50	2.00%	\$ 2,500.00	\$ 5,000	\$ 3,600	\$ 1,400	
Valve 8" (1975)		3 ea		1975	36	50	2.00%	\$ 1,250.00	\$ 3,750	\$ 2,700	\$ 1,050	
Valve 8" (1986)		2 ea		1986	25	50	2.00%	\$ 1,250.00	\$ 2,500	\$ 1,250	\$ 1,250	
Valve 8" (1992)		1 ea		1992	19	50	2.00%	\$ 1,250.00	\$ 1,250	\$ 475	\$ 775	
Valve 8" (1994)		3 ea		1994	17	50	2.00%	\$ 1,250.00	\$ 3,750	\$ 1,275	\$ 2,475	
Valve 8" (1996)		2 ea		1996	15	50	2.00%	\$ 1,250.00	\$ 2,500	\$ 750	\$ 1,750	
Valve 8" (1997)		3 ea		1997	14	50	2.00%	\$ 1,250.00	\$ 3,750	\$ 1,050	\$ 2,700	
Valve 8" (1999)		1 ea		1999	12	50	2.00%	\$ 1,250.00	\$ 1,250	\$ 300	\$ 950	
Valve 6" (1984)		7 ea		1984	27	50	2.00%	\$ 950.00	\$ 6,650	\$ 3,591	\$ 3,059	
Valve 6" (1986)		1 ea		1986	25	50	2.00%	\$ 950.00	\$ 950	\$ 475	\$ 475	
Valve 6" (1993)		4 ea		1993	18	50	2.00%	\$ 950.00	\$ 3,800	\$ 1,368	\$ 2,432	
Valve 6" (2000)		1 ea		2000	11	50	2.00%	\$ 950.00	\$ 950	\$ 209	\$ 741	
Valve 6" (2001)		1 ea		2001	10	50	2.00%	\$ 950.00	\$ 950	\$ 190	\$ 760	
Valve 4" (1993)		1 ea		1993	18	50	2.00%	\$ 800.00	\$ 800	\$ 288	\$ 512	
Valve 4" (1997)		1 ea		1997	14	50	2.00%	\$ 800.00	\$ 800	\$ 224	\$ 576	
Valve 4" (2001)		2 ea		2001	10	50	2.00%	\$ 800.00	\$ 1,600	\$ 320	\$ 1,280	
Valve 2" (1984)		1 ea		1984	27	50	2.00%	\$ 200.00	\$ 200	\$ 108	\$ 92	
Meter	Various Sizes owned by customers	24 ea		1996	15	15	6.67%	\$ 250.00	\$ 6,000	\$ 6,000	\$ -	
Service Lines		- ea				40	2.50%	\$ 750.00	\$ -	\$ -	\$ -	
TOTAL									\$ 2,111,270	\$ 1,187,308	\$ 923,962	

Cells highlighted in yellow indicate estimated data.

¹ Based on public information and data provided by water provider.

² Indicates actual age for individual assets. Indicates weighted average age of installed assets for summary lines.

³ Average expected life of asset type, adjusted based on physical observation of asset condition.

⁴ Annual depreciation rate of asset.

⁵ Estimate of Reconstruction Cost on new asset in 2011 dollars.

⁶ Accumulated depreciation of asset base on age x depreciation rate.

⁷ Reconstruction Cost Less Depreciation.

Anasazi Water Co., LLC
Detailed Inventory of Facilities and Reconstruction Cost New Less Depreciation

7/25/2011

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²	Estimated Service Life ³	Depreciation Rate ⁴	Unit Cost	Reconstruction Cost ⁵	Depreciation ⁶	RCNID ⁷	Comments
Storage Tank		400,000 gal		1975	36.0	40.0	2.50%		\$ 420,000	\$ 378,000	\$ 42,000	Tank appears to be in generally good condition. Evidence of leakage at well fill line. Actual age unknown.
Welded Steel Tank		400,000 gal	53' dia x 24' tall	1975	36	40	2.50%	\$ 1.00	\$ 400,000	\$ 360,000	\$ 40,000	
Site Work		1 lot		1975	36	40	2.50%	10,000.00	10,000	9,000	1,000	
Foundation (Tension)		1 ea	53' dia x 4" thick	1975	36	40	2.50%	10,000.00	10,000	9,000	1,000	
Hauled Water Booster Pump	Behind Red Feather Inn			1994	17.0	29.7	3.79%		\$ 14,500	\$ 9,350	\$ 5,150	
Pump Unit		500 gpm		1994	17	20	5.00%	\$ 10.00	\$ 5,000	\$ 4,250	\$ 750	Unable to view. Actual age unknown.
Piping Valves		1 lot		1994	17	40	2.50%	5,000.00	5,000	2,125	2,875	
Pump Controls		1 lot		1994	17	20	5.00%	2,500.00	2,500	2,125	375	
Enclosure		1 lot		1994	17	40	2.50%	2,000.00	2,000	850	1,150	
Anasazi Well				1999	13.1	24.5	5.11%		\$ 1,057,950	\$ 609,546	\$ 448,404	ADWR 55-56019 Well is currently out of service. Well pump and motor, column pipe and electrical cable stored at well site.
Site Work		1 lot		1999	12	40	2.50%	\$ 15,000.00	\$ 15,000	\$ 4,500	\$ 10,500	
Fencing		1 lot		1999	12	20	5.00%	2,000.00	2,000	1,200	800	
Electrical Shed	Chain Link	1 ea		1999	12	40	2.50%	12,000.00	12,000	3,600	8,400	
Pump Shed		1 ea		1999	12	40	2.50%	8,000.00	8,000	2,400	5,600	
Electrical Service/Gear		1 lot		1999	12	40	2.50%	42,000.00	42,000	12,600	29,400	
Step Up Transformer		1 ea		1999	12	25	4.00%	11,250.00	11,250	5,400	5,850	
Motor Control Center		1 ea		1999	12	25	4.00%	20,000.00	20,000	9,600	10,400	
Well Drilling		3,120 lf		1997	14	25	4.00%	240.00	748,800	419,328	329,472	
Well Casing	8" dia.	3,100 lf		1997	14	25	4.00%	25.00	77,500	43,400	34,100	
Well Pump and Motor		1 ea		2006	5	5	20.00%	75,000.00	75,000	75,000	-	
Motor Cable		2,600 lf		1999	12	12	8.33%	5.00	13,000	13,000	-	
Column Pipe	2-3/8" OD EUE Steel	2,600 lf		1999	12	17	5.88%	9.00	23,400	16,518	6,882	
Discharge Piping		1 lot		1999	12	40	2.50%	10,000.00	10,000	3,000	7,000	Detailed maps unavailable. Actual age and material of most mains unknown.
Mains					8	45.5	2.00%		\$ 80,500	\$ 15,270	\$ 65,230	
Segment A	8" PVC	290 lf		2002	9	50	2.00%	\$ 30.00	\$ 8,700	\$ 1,566	\$ 7,134	
Segment B	2" PE	725 lf		1999	12	50	2.00%	8.00	5,800	1,392	4,408	
Segment C	8" PVC	450 lf		2002	9	50	2.00%	30.00	13,500	2,430	11,070	
Segment D	8" PVC	200 lf		2002	9	50	2.00%	30.00	6,000	1,080	4,920	
Segment E	8" PVC	440 lf		2002	9	50	2.00%	30.00	13,200	2,376	10,824	
Segment F	8" PVC	110 lf		2002	9	50	2.00%	30.00	3,300	594	2,706	
Segment G	8" PVC	320 lf		2002	9	50	2.00%	30.00	9,600	1,728	7,872	
Segment H	8" PVC	440 lf		2002	9	50	2.00%	30.00	13,200	2,376	10,824	
Segment I	2" PVC	900 lf		1999	12	50	2.00%	8.00	7,200	1,728	5,472	

Anasazi Water Co., LLC
Detailed Inventory of Facilities and Reconstruction Cost New Less Depreciation

7/25/2011

Site / Component	Location / Description	Quantity / Size	Dimensions	Year In Service ¹	Age ²	Estimated Service Life ³	Depreciation Rate ⁴	Unit Cost	Reconstruction Cost ⁵	Depreciation ⁶	RCNLD ⁷	Comments
Hydrant/Valves/Meters					12.5	47.3	2.3%		\$ 56,750	\$ 17,125	\$ 39,625	Detailed maps unavailable. Actual age and number of valves unknown.
Valves		9 ea		2002	9	50	2.00%	\$ 2,500.00	\$ 22,500	\$ 4,050	\$ 18,450	
Valves		6 ea		2002	9	50	2.00%	2,500.00	15,000	2,700	12,300	
Hydrants		4 ea		2002	9	50	2.00%	2,500.00	10,000	1,800	8,200	
Meters	Various Sizes	10 ea		1996	15	15	6.67%	250.00	2,500	2,500	-	
Service Lines	Various Sizes	9 ea		1975	36	40	2.50%	750.00	6,750	6,075	675	
TOTAL									\$ 1,629,700	\$ 1,029,291	\$ 600,409	

¹ Cells highlighted in yellow indicate estimated data.

² Based on public information and data provided by water provider.

³ Indicates actual age for individual assets. Indicates weighted average age of installed assets for summary lines.

⁴ Average expected life of asset type, adjusted based on physical observation of asset condition.

⁵ Annual depreciation rate of asset.

⁶ Estimate of Reconstruction Cost on new asset in 2011 dollars.

⁷ Accumulated depreciation of asset base on age x depreciation rate.

⁸ Reconstruction Cost Less Depreciation.